



*IFW*

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: CHOI et al.

Attorney Docket No.:  
LAM1P187/P930X

Application No.: 10/798,456

Examiner: Unassigned

Filed: March 10, 2004

Group: 1765

Title: LINE EDGE ROUGHNESS CONTROL

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on August 6, 2004 in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signed: \_\_\_\_\_

*Sue Funchess*  
Sue Funchess

**INFORMATION DISCLOSURE STATEMENT  
37 CFR §§1.56 AND 1.97(b)**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449 may be material to examination of the above-identified patent application. Applicants submit the list of these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. The above-identified application is a continuation-in-part application of prior application U.S. Patent Application No. 10/170,424. This prior application is being relied upon for an earlier filing date under 35 U.S.C. § 120. Because the listed references were either cited by the PTO, or submitted to the PTO in the prior application, under 37 CFR § 1.98(d) Applicants submit that copies need not be provided.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office

Action after the filing of a Request for Continued Examination under §1.114. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0388 (Order No. LAM1P187).

Respectfully submitted,  
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Michael Lee", with a stylized flourish at the end.

Michael Lee  
Registration No. 31,846

P.O. Box 778  
Berkeley, CA 94704-0778  
(650) 961-8300



<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No. <b>LAM1P187/P930X</b>	Application No.: <b>10/798,456</b>
	Applicant: <b>CHOI et al.</b> Filing Date <b>03/10/04</b>	Group <b>1765</b>

### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	4,283,249	08/11/81	Ephrath	216	66	08/17/79
	B	4,430,462	02/07/84	Jaeger et al.	204	503	06/01/82
	C	4,857,140	08/15/89	Loewenstein	438	724	03/31/88
	D	4,978,419	12/18/90	Nanda et al.	438	701	05/31/88
	E	5,013,398	05/07/91	Long et al.	438	714	05/29/90
	F	5,013,400	05/07/91	Kuraski et al.	438	713	01/30/90
	G	5,201,994	04/13/93	Nonaka et al.	216	69	07/17/90
	H	5,266,154	11/30/93	Tatsumi	216	67	04/27/92
	I	5,300,460	04/05/94	Collins et al.	438	712	03/16/93

### Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	J	0050972	05/05/82	EPO	H01L	21/88	X	
	K	0496614	07/29/92	EPO	H01L	21/3105	X	
	L	0553961	08/04/93	EPO	H01L	21/311	X	
	M	0777267	06/04/97	EPO	H01L	21/311	X	
	N	1041614	10/04/00	EPO	H01L	21/306	X	

### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	O	Horiike Y. et al., "High Rate and Highly Selective SiO <sub>2</sub> Etching Employing Inductively Coupled Plasma and Discussion on Reaction Kinetics", Journal of Vacuum Science and Technology: Part A, American Institute of Physics, New York, US, Vol. 13, no. 3, Part 1, 1 May 1995, pp. 801-809.
	P	Kumar M.J. et al., "Selective Reactive Ion Etching of PECVD Silicon Nitride over Amorphous Silicon in CF <sub>4</sub> /H <sub>2</sub> and Nitrogen Containing CF <sub>4</sub> /H <sub>2</sub> Plasma Gas Mixtures", Solid State Electronics, Elsevier Science Publishers, Barking, GB, vol. 39, no. 1, 1995, pp. 33-37.
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No.	Application No.:
	<b>LAM1P187/P930X</b>	<b>10/798,456</b>
	Applicant:	
	<b>CHOI et al.</b>	
	Filing Date	Group
	<b>03/10/04</b>	<b>1765</b>

#### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	5,312,518	05/17/94	Kadomura	438	723	05/29/92
	B	5,338,399	08/16/94	Yanagida	216	67	02/12/92
	C	5,423,945	06/13/95	Marks et al.	438	695	09/08/92
	D	5,556,501	09/17/96	Collins et al.	156	345.38	04/01/93
	E	5,609,720	03/11/97	Lenz et al.	438	715	09/29/95
	F	5,767,021	06/16/98	Imai et al.	438	719	06/25/97
	G	5,872,061	02/16/99	Lee et al.	438	705	10/27/97
	H	5,888,414	03/30/99	Collins et al.	216	68	09/24/97
	I	5,892,286	04/06/99	Toyoda et al.	257	775	12/03/96

#### Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	J	2000340552	12/08/00	Japan	H01L	21/3065	X	
	K	2001110784	04/20/01	Japan	H01L	21/3065	X	
	L	11-111680	04/23/99	Japan	H01L	21/3065	X	
	M	11-016887	01/22/99	Japan	H01L	21/3065	X	
	N	0889507	01/07/99	EPO	H01L	21/311	X	

#### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	O	Maeda M. et al., "Low Dielectric Constant Amorphous SIBN Ternary Films Prepared by Plasma-Enhanced Deposition", Japanese Journal of Applied Physics, Publication Office Japanese Journal of Applied Physics, Tokyo, Japan, vol. 26, no. 5, Part 1, 1 May 1987, pp. 660-665.
	P	Norstrom H., "Silicon Surface Damage Caused by Reactive Ion Etching in Fluorocarbon Gas Mixtures Containing Hydrogen", Journal of Vacuum Science and Technology: Part B, American Institute of Physics, New York, US, vol. 9, no. 1, 1991, pp. 34-40.
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No.	Application No.:
	<b>LAM1P187/P930X</b>	<b>10/798,456</b>
	Applicant:	
	<b>CHOI et al.</b>	
	Filing Date	Group
	<b>03/10/04</b>	<b>1765</b>

#### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	5,965,035	10/12/99	Hung et al.	216	72	10/23/97
	B	5,965,463	10/12/99	Cui et al.	438	723	07/03/97
	C	6,033,990	03/07/00	Kishimoto et al.	438	710	03/04/98
	D	6,068,784	05/30/00	Collins et al.	216	68	04/01/93
	E	6,074,959	06/13/00	Wang et al.	438	738	11/05/97
	F	6,090,303	07/18/00	Collins et al.	216	68	12/05/96
	G	6,117,786	09/12/00	Khajehnouri et al.	438	700	05/05/98
	H	6,183,655	02/06/01	Wang et al.	216	68	03/27/98
	I	6,191,043	02/20/01	McReynolds	438	710	04/20/99

#### Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	J	0305268	03/01/89	EPO	H01L	21/306	X	
	K							
	L							
	M							
	N							

#### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	O	Norstrom H. et al., "RIE of SiO <sub>2</sub> in Doped and Undoped Fluorocarbon Plasmas", Vacuum, Pergamon Press Ltd., Great Britain, Vol. 32, No. 12, pp. 737-745; 1982.
	P	Standaert, T.E.F.M. et al., "Patterning of Fluorine-, Hydrogen-, and Carbon-Containing SiO <sub>2</sub> -Like Low Dielectric Constant Materials in High-Density Fluorocarbon Plasmas: Comparison with SiO <sub>2</sub> ", Journal of Vacuum Science and Technology A 173(3), May/June 1999, pp. 741-748.
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No.	Application No.:
	<b>LAM1P187/P930X</b>	<b>10/798,456</b>
	Applicant:	
	<b>CHOI et al.</b>	
	Filing Date	Group
	<b>03/10/04</b>	<b>1765</b>

#### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	6,194,325	02/27/01	Yang et al.	438	740	12/04/95
	B	6,214,744	04/10/01	Wada	438	723	09/28/99
	C	6,217,785	04/17/01	Collins et al.	216	68	12/09/96
	D	6,217,786	04/17/01	Hills et al.	216	79	12/31/98
	E	6,238,588	05/29/01	Collins et al.	216	68	10/21/96
	F	6,251,792	06/26/01	Collins et al.	438	710	10/10/97
	G	6,277,758	08/21/01	Ko	438	706	07/23/98
	H	6,391,790	05/21/02	Stoehr et al.	438	715	07/25/00
	I	2003/0232504	12/18/03	Eppler et al.	438	709	06/14/02

#### Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	J							
	K							
	L							
	M							
	N							

#### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	O	Notification of Transmittal of the International Search Report or the Declaration for PCT/US03/18791 dated 01/16/2004.
	P	Written Opinion dated March 2, 2004 for PCT/US03/18791.
	Q	
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.